

CLAIMS

1. A cable extension unit having a signal transmitter for receiving input of an image signal and a signal receiver for outputting said image signal received from said signal transmitter through four signal lines, said signal receiver being connected with said signal transmitter through said four signal lines, said cable extension unit for respectively transmitting color signals R, G, B which comprises a RGB signal to said signal receiver through three signal lines of said four signal lines in case where said image signal inputted into said signal transmitter is said RGB signal:

said signal transmitter comprising:

synchronous signal polarity judging means for judging polarity of a synchronous signal corresponding to said RGB signal inputted into said signal transmitter;

synchronous signal polarity inverting means for inverting polarity of said synchronous signal in case where said synchronous signal polarity judging means judged said polarity of said synchronous signal to be positive;

synchronous signal overlapping and outputting means for operating so that said synchronous signal overlap any color signal which

comprises said RGB signal inputted into said signal transmitter and for outputting said color signal which said synchronous signal overlapped through said signal line corresponding to said color signal;

sound signal receiving means for receiving input of a sound signal;

polarity information adding means for adding polarity information of said synchronous signal to a non-data area of said sound signal inputted in said sound signal receiving means; and

sound signal transmitting means for transmitting said sound signal, said polarity information being added thereto by said polarity information adding means, through one of said four signal lines, through which said RGB signal has not been transmitted, to said signal receiver;

said signal receiver comprising:

synchronous signal separating means for separating said synchronous signal from said color signal which said synchronous signal overlapped by said synchronous signal overlapping and outputting means, said color signal being transmitted from said signal transmitter through said signal line;

polarity information separating means for separating said polarity information from said sound signal, said polarity information being added thereto by said polarity information adding means,

said sound signal being transmitted from said signal transmitter through said one signal line, through which said RGB signal has not been transmitted;

synchronous signal recovering and outputting means for recovering said synchronous signal inputted in said signal transmitter, corresponding to said RGB signal from said synchronous signal separated by said synchronous signal separating means on the basis of said polarity information separated by said polarity information separating means and for outputting it; and

sound signal outputting means for outputting said sound signal, said polarity information being separated therefrom by said polarity information separating means.

2. The cable extension unit according to claim 1, wherein said sound signal inputted in said sound signal receiving means of said signal transmitter is an analog signal, said signal transmitter has AD converting means for converting said sound signal inputted in said sound signal receiving means into a digital signal, said polarity information adding means of said signal transmitter adds said polarity information of said synchronous signal to said non-data area of said sound signal converted into said digital signal

by said AD converting means, said signal receiver has DA converting means for converting said sound signal from which said polarity information has been separated by said polarity information separating means of said signal receiver into an analog signal, and said sound signal outputting means of said signal receiver outputs said sound signal converted into said analog signal by said DA converting means.

3. The cable extension unit according to claim 1, wherein a plural number of said sound signals are inputted in said sound signal receiving means of said signal transmitter, said signal transmitter has serial converting means for converting said plural number of sound signals inputted in said sound signal receiving means into a serial signal, said polarity information adding means of said signal transmitter adds said polarity information of said synchronous signal to said non-data area of said sound signal converted into said serial signal by said serial converting means, said signal receiver has sound signal recovering means for recovering said plural number of sound signals from said sound signal from which said polarity information has been separated by said polarity information separating means of said signal receiver, and said sound signal outputting

means of said signal receiver outputs said plural number of sound signals recovered by said sound signal recovering means.

4. The cable extension unit according to claim 1, wherein said four signal lines comprise a LAN cable belonging to Category 5.

5. The cable extension unit according to claim 1, wherein said signal transmitter has synchronous signal separate input judging means for judging as to whether or not said synchronous signal inputted into said signal transmitter, corresponding to an image signal was inputted separately from said image signal, and synchronous signal polarity judgment instructing means for instructing said synchronous signal polarity judging means of said signal transmitter to judge said polarity of said synchronous signal inputted in said signal transmitter, corresponding to said RGB signal when said synchronous signal separate input judging means judged said synchronous signal inputted in said signal transmitter, corresponding to said image signal to be separately inputted from said image signal.